WHAT IS CLAIMED IS:

1. A method of identifying a candidate compound that modulates ΔTRα2 polypeptide activity, the method comprising:

a) obtaining a ΔTRα2 polypeptide

b) contacting the ΔTRα2 polypeptide with a test compound, and

c) assaying for binding of the test compound to the ΔTRα2 polypeptide, wherein binding indicates that the test compound is a candidate compound.

2. A method of identifying a candidate compound that modulates ΔTRα2 polypeptide activity, the method comprising:

a) obtaining a ΔTRα2 polypeptide bound to a ΔTRα2 ligand,

b) contacting the ΔTRα2 polypeptide bound to the ΔTRα2 ligand with a test compound, and

c) measuring the displacement of the ΔTRα2 ligand from the ΔTRα2 polypeptide, wherein displacement indicates that the test compound is a candidate compound that modulates ΔTRα2 polypeptide activity.

3. A method of identifying a candidate compound that modulates ΔTRα2 polypeptide activity, the method comprising:

a) obtaining a test sample containing a ΔTRα2 polypeptide,

b) incubating the test sample with a test compound, and

c) assaying the test sample containing the test compound for an alteration in type II 5' deiodinase (D2) activity, such that a test compound that alters D2 activity when compared to a test sample that was not incubated with the test compound is a candidate compound.

4. The method of claim 3, wherein the test compound decreases the amount of D2 activity.

5. A method of identifying a candidate compound that modulates ΔTRα2 polypeptide activity, the method comprising:

a) obtaining a test sample containing a ΔTRα2 polypeptide,

b) performing an actin binding assay with the test sample in the presence of a test compound, such that a test compound that alters the binding of p29 vesicles to F-actin when compared to a test sample that was not incubated with the test compound is a candidate compound.

6. The method of claim 1, wherein the test compound is a flavone.

7. The method of 2, wherein the test compound is a flavone.

8. The method of claim 3, wherein the test compound is a flavone.

9. The method of claim 5, wherein the test compound is a flavone.

10. The method of claim 1, wherein the test compound is an aurone.

11. The method of claim 2, wherein the test compound is an aurone

12. The method of claim 3, wherein the test compound is an aurone

13. The method of claim 5, wherein the test compound is an aurone

14. The method of claim 1, wherein the test compound is a T4 analog.

15. The method of 2, wherein the test compound is a T4 analog.

16. The method of claim 3, wherein the test compound is a T4 analog.

17. The method of claim 5, wherein the test compound is a T4 analog.

18. A compound identified by the method of claim 1.

19. A compound identified by the method of claim 2.

20. A compound identified by the method of claim 3.

21. A compound identified by the method of claim 5.

22. A method of treating a subject who has a neurologic disorder, the method comprising administering to the subject a therapeutically effective amount of a ΔTRα2 ligand.

23. A method of treating an individual who has a mood disorder, the method comprising administering to the individual a therapeutically effective amount of a ΔTRα2 ligand.

24. An isolated nucleic acid molecule comprising a ΔTRα2 targeting construct comprising a DNA sequence homologous to a sequence encoding a mouse ΔTRα2 polypeptide, wherein when the construct is introduced into a mouse cell or an ancestor of the mouse cell at an embryonic stage, and the construct-derived sequences are incorporated into an endogenous TRα gene, the cell does not express ΔTRα2 in significant amounts.

25. A vector comprising the nucleic acid of claim 24.

26. The isolated nucleic acid molecule of claim 24, wherein the construct comprises a nucleic acid sequence homologous to intron 7 of a mouse TRα gene.

27. The isolated nucleic acid molecule of claim 24, wherein introduction of the construct disrupts the AP1, ctf, GR, SP1, or ets1 sequence of intron 7.

28. The isolated nucleic acid molecule of claim 24, further comprising a gene selection cassette.

29. The isolated nucleic acid molecule of claim 24, wherein the construct comprises a nucleic acid sequence homologous to exon 10 of a mouse TRα DNA sequence.

30. A transgenic, non-human animal whose germ cells and somatic cells comprise a mutated TRα gene, the mutation being sufficient to inhibit binding of thyroxine (T4) to ΔTRα2 transcribed from the gene, said mutated gene being introduced into the non-human animal or an ancestor of the animal at an embryonic stage, wherein the animal, if homozygous for the mutation, has impaired motor function.

31. A transgenic, non-human animal of claim 30, wherein the animal is a mouse or a rat.

32. A transgenic, non-human animal of claim 30, wherein the animal is a goat, sheep, or a pig.

33. A cell derived from the animal of claim 30.

34. The cell of claim 33, wherein the cell is an astrocyte.

35. The transgenic animal of claim 30 wherein the TRα gene is mutated in intron 7.

36. The transgenic animal of claim 19, wherein the TRα gene is mutated in exon 10.

37. A transgenic non-human animal whose somatic and germ cells comprise a disrupted TRα gene, the disruption being sufficient to inhibit the binding of T4 to a ΔTRα1 or ΔTRα2 translation product of the TRα gene, the disrupted gene being introduced into the animal or an ancestor of the animal at an embryonic stage.

38. The animal of claim 37, wherein the disruption comprises a mutation in intron 7 of the TRα gene.

39. The animal of claim 37, wherein the disruption consists of a deletion of all or a part of intron 7 of the TRα gene.

40. The animal of claim 37, wherein the disruption is in exon 10 of the TRα gene.

41. The animal of claim 37, wherein the disruption consists of a deletion of all or part of exon 10 of the TRα gene.

42. The animal of claim 37, wherein the non-human animal, if homozygous for the disrupted gene, has impaired motor function.

43. The animal of claim 37, wherein the non-human animal is a rodent.

44. The animal of claim 37, wherein the animal is a mouse.

45. The animal of claim 37, wherein the animal is a rat.